THE VETERINARY RECORD

A Weekly Journal for the Profession.

EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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COMPULSORY NOTIFICATION.

The discussion of the Tuberculosis Order by the Midland Counties V.M.A., the report of which we publish this week, contains some unexpectedly hostile references to the compulsory notification of scheduled disease by veterinary surgeons. The smallness of the sum paid for notification, and the possibility of offending clients by notifying, were the objections adduced. Neither is sufficient excuse for contravening an Order of the Board of Agriculture which has now been in force unchallenged for more than three years, and the principle of which has been supported by the profession for a very much longer period.

Our own history in connection with compulsory notification should be remembered. It is now nearly twenty years since the profession was circularised upon the question, and a large majority decided in favour of compulsory notification with a fee attached. The decision was not acted upon for many years, but the opinion of the profession did not change; and the establishment of compulsory notification in 1910 passed almost without comment.

The legislation compelling notification places the veterinary practitioner on the same footing as the medical man with regard to scheduled disease. It does not enjoin him to search the premises he may visit for evidence of disease. It does require him, when he is employed to examine an animal which he believes or suspects to be suffering from a scheduled disease, to notify the fact to the proper authority. The fee is small, but it is not the only fee which the examination yields, and it suffices for the slight trouble of notification—most men will admit this. Probably the real root of any present objection to compulsory notification is the fear of offending clients, but the importance of this point may easily be exaggerated. Few clients will find fault with a practitioner for notifying disease if the law relating to it is clearly explained to them, and it is to the interest of our clients and of the community that this should be done. Before the days of compulsory notification, our position with regard to scheduled disease was difficult. We were not obliged to report—we might even have been actionable for breach of confidence if we did report—and so we were often compelled to see the law evaded. The legislation obliging us to notify released us from that unenviable position, and enables every practitioner to do his duty to the State.

ABOUT CONGRESSES.

We have given space this week to some notes about Congresses, because they are sent by an old contributor—one of our earliest, and because we think that his argument is valid—that no such Congress as the one to be held in England next year has ever been held here before, and that few of our members—probably not more than 20, have attended the others of the series held on the Continent. Consequently the majority of our members have little idea of the scale on which such functions are carried out, nor, generally, of the scope of the meetings for which they have so frequently been asked to contribute the "sinews of war," in order to do honour to their guests, and in so doing to honour themselves.

ENTROPIUM SPASTICUM IN A HORSE.

Becker records (*Zeitchr. f. Veterinark.*) the case of an officer's horse, eighteen years old, which he treated; in the first place for a violent conjunctivitis and keratitis. After a fortnight's treatment the case had improved; and then suddenly a relapse set in. The conjunctivitis and keratitis were now more severe than at the beginning of the illness; and, in addition, an entropium appeared. Recovery could now only be gained by the entropium operation.

After the most severe inflammatory symptoms had been subdued, Becker performed the operation upon the standing horse, under local anæsthesia with cocaine and adrenalin. The skin of the upper eyelid was taken up into a high fold, and adjusted so as to bring the edge of the lid into its proper position. The fold was then removed with scissors, leaving an elliptical cutaneous wound, with a breadth of seven millimetres (=7-25th inch) between the edge of the wound and that of the eyelid. The skin was then sutured and several layers of gauze and a bandage applied to the eyelid.

Upon the fourth day, however, it became evident that the entropium was only partially overcome; and a second operation was therefore undertaken on the eighth day. This time the fold of skin was drawn so high that the edge of the upper eyelid was slightly everted, thus constituting a slight ectropium. In other respects the operation was carried out as the first one had been.

The next day the ectropium had become more marked, and it was feared that too much skin might have been removed. This fear was groundless. The operation resulted in the complete re-

moval of the entropium; and the conjunctivitis and keratitis also gradually disappeared.

Becker explains the origin of the entropium as follows: The horse suffered repeatedly from a catarrhal conjunctivitis associated with irritation, and sought to relieve the irritation by rubbing against the manger and protruding the third eyelid. In consequence of this the eyeball was drawn back in the orbit by contraction of the retractor bulbi muscle, and the action of the levator muscle of the upper eyelid thereupon drew the edge of the lid inwards.

Becker considers that, in performing the entropium operation upon the horse, the piece of skin removed should be so large that a slight ectropium appears after the operation.—*Münchener Tiez. Woch*

Congenital Atresia of the Lachrymal Canal.

Hartog records (*Tydschr. v. Veeartsenijkunde*) the case of a colt a year and a half old. The animal had been bought six months before; and, from the moment of purchase, had shown symptoms of conjunctivitis which did not yield to the ordinary methods of treatment.

Upon examination, Hartog found the conjunctiva injected and engorged. The conjunctival secretion was muco-purulent; and the discharge had produced a large erosion of the skin over which it flowed. The cornea was normal, as were also the other component parts of the eye.

Examination of the nasal cavity corresponding to the affected eye showed that the orifice of the lachrymal canal was not present, and that, at the place where it should have been, the mucous membrane was slightly raised. The case was therefore one of congenital obstruction of the orifice of the lachrymal canal.

Hartog examined a piece of mucous membrane at the raised point; and this was immediately followed by the escape of a certain quantity of muco-purulent matter. The conjunctivitis was then treated with a collyrium of nitrate of silver. The orifice established by the excision of mucous membrane remained pervious; and the cure was soon complete.—(*Annales de Méd. Vét.*)

Sugar in the Treatment of Wounds.

The antiseptic action of sugar has long been known; and the treatment of wounds by it is also nothing new. Dr. G. Magnus, of Norburg, describes (*Münchener Mediz. Woch.*) his experiments and observations upon the latter question. In the first place, he bacteriologically examined commercial beet-sugar, and found that in no single instance could pathogenic bacteria be demonstrated in it. He then used beet-sugar without further preparation in the treatment of wounds, employing it in about 100 cases.

Magnus found that, in tuberculous processes, a distinct cleansing of the surfaces of the wound certainly appeared; but the specific process itself remained unaltered. Apart from tuberculosis, he considers the results of wound-treatment by sugar encouraging. The sugar acts as a disinfectant and antiseptic. It dissolves fibrin, and stimulates secretion by vigorous osmotic processes, which are comparable to a rinsing out of the wound with serum from within outwards.

Speedy cleansing, deodourisation, healthy granulation, and rapid proliferation of epithelium result from this. Magnus therefore concludes that sugar is a safe, cheap, and for practical purposes sterile agent.—(*Berliner Tier. Woch.*)

The Toxicity of Boric Acid Powder.

Charmoy has published (*Recueil d'Alfort*) an article upon this question. Having been struck by certain symptoms of poisoning he observed in dogs which had been treated with boric acid powder applied to wounds, he studied the action of the drug systematically. After detailing his observations, he states his conclusions as follows:

1. Boric acid powder, used as an external medicament upon the wounds of dogs, is toxic in a dose varying between 2½ to 3 grammes (roughly about 38 to 46 grains) to every kilogramme (2·2lb.) of the animal's weight, provided the animal is in a satisfactory condition of health.

2. The toxicity of the drug is much higher in animals already affecthd with a chronic disease, especially nephritis or skin disease,

3. The symptoms of poisoning at first are weakness, difficulty in progression, and a slight accleration of the grand functions of the body. These are followed by vomiting, diarrhœa, and fall of the temperature. Towards the end there is an absolute "muscular resolution," with sometimes the appearance of blood in the excrements and in the vomited material. Death takes takes place in coma and hypothermia.

4. Death seems to be due partly to the rapid evolution of an acute nephritis, and partly to nervo-muscular paralysis, the latter no doubt being caused by the inhibitory action of the boric acid upon the nerve centres. The author concludes, then, that boric acid is not an inoffensive substance the dose of which is unimportant, and that its use should not be generalised. He suggests that the drug might well be banished from canine therapeutics, and reserved for dressing the wounds of the large animals. Even in the latter it should always be remembered that boric acid has a debilitating and cachectising action, and a manifest tendency to alter the renal apparatus.—(*La Semaine Vét.*)

Hæmorrhage from the Vena Cava caused by an Exostosis of the Vertebral Column.

Lagaillarde records (*Revue Vétérinaire*) the case of a mare which, after having leaped the bar in the riding school, galloped a few yards and then suddenly fell. She rose, staggered for the first steps after rising, and then regained her normal appearance.

The next day she was led at a trot with the object of ascertaining if lameness existed; and, at the end of the run, she was turned shortly. She immediately faltered, managed to travel a few yards further, and then collapsed. Four hours later, she died with all the signs of internal hæmorrhage.

The post-mortem examination was exceedingly interesting. The abdominal cavity was found filled with blood. The vena cava, which showed a voluminous thrombus, also presented a large rupture with jagged edges, the rupture being opposite to an exostosis of the vertebral column, The aorta was pushed from its normal position by exostoses of the bodies of the dorsal and lumbar vertebræ, and was therefore sinuous in its course.

The anchylosing osteitis had transformed the thoracic and lumbar regions of the spine into a rigid arc, by ossification of the cartilages and "soldering" of the vertebral bodies. The bodies of the vertebræ were deformed. A great number of them showed osseous formations either upon the lateral parts or upon the median crest. The last lumbar vertebra, upon the right part of its body, exactly opposite to the vena cava, showed a projecting exostosis which was triangular in shape and possessed cutting edges.

As the animal was an Army horse, it was possible to obtain her medical history. Her infirmary record was very small, comprising an incapacity of short duration on account of an exostosis on the internal aspect of the hock, a pharyngeal strangles, and an attack of horse-pox. The gross lesions of the vertebral column had never been suspected during life, only very slight symptoms having been seen which may be attributed to them. At the most these symptoms had been confined to slight resistance to being mounted, and a certain amount of stiffness during the first steps of progression.

This mare resembled many other osteitic patients in having previously been affected with microbial diseases, There may perhaps have been a relation of cause and effect between the microbial diseases and the essentially chronic osteitic process.—*Annales de Méd. Vét.*)

[Neither the age of the mare, nor the time which had elapsed since the previous attacks of disease, is stated.—*Transl.*]

W. R. C.

ECONOMIC FACTORS IN CATTLE FEEDING. — II, ARGENTINA AS A FACTOR IN INTERNATIONAL BEEF TRADE.—H. W. MUMFORD (*Illinois Sta. Circ.* 164, pp. 3-18, figs. 10).

This bulletin discusses the present and the possible future of the beef industry in Argentina, which is now supplying European markets with beef formerly obtained from the United States.

The five provinces of Buenos Aires, Corrientes, Entre Rios, Santa Fe, and Cordoba, known as the pampas grass region, contain over 80 per cent. of the cattle in Argentina. Approximately 5,000,000 cattle were slaughtered in 1911, of which about 1,000,000 were shipped abroad as dressed beef, and a considerable proportion of the remainder was prepared for export in other forms. The exports of beef have increased from 64,000,000 lb. in 1885, to 580,000,000 lb. in 1910. Argentine grass-fed beef sells on the English market within from two to five cents per pound of corn-fed beef from the United States.

Expansion of the cattle raising industry in Argentina has ceased, however, largely because grain growing has proved more profitable, and as the cost of beef production will increase with increased cost of labour and land, it is thought that on the whole the business of raising beef cattle in the United States will not be permanently menaced by Argentine competition. A bibliography is appended.

RESEARCHES ON EPIZOOTIC LYMPHANGITIS IN ALGERIA.—J. BRIDRE, L. NEGRE, G. TROUETTE (*Ann. Inst. Pasteur*, 26 (1912), No. 9, pp. 701-726, pl. 1, fig. 1).

Clinical observations and experimental investigations show that the epizootic lymphangitis is transmissible by direct inoculation, and that the intervention of blook-sucking insects is not necessary. A study of new lesions shows that the cryptococcus of Rivolta is not a parasite of the leucocytes. Its morphology and mode of reproduction would indicate it to be of the nature of a blastomycete as do complement fixation tests of the cryptococcus and certain yeasts. The authors find that salvarsan can be used to advantage in treatment of the disease, a 1-grm. dose giving better results than larger doses.

THE WIDTH OF THE JAW OF CATTLE IN RELATION TO MILK PRODUCTION AND THE WEIGHT OF THE HEART AND LUNGS.—G. KORRENG. (*Jahrb. Wiss. u. Prakt, Tierzucht*, 7 (1912), pp. 132-142).

As a result of measurements of calves, bulls and cows, it is concluded that a narrow jaw in, cows is associated with a high milk production, and a wide jaw with heavy heart and lungs. The weight of the heart was relatively larger in males than in females, and that of the lungs larger in females than in males.

F. E. P.

ABOUT CONGRESSES.

"There are a good many scientific workers who do not hesitate to declare their belief that Congresses of all sorts are a waste of time and money. They say that nothing new is disclosed—or very seldom, at any rate—and that the 'windbags' and self-advertisers use such meetings as opportunities for taking unto themselves credit which should go to the genuine research worker, whose brains are picked by men merely out for popular applause. There is a certain element of truth in this generalisation; but to the recent International Congress in London it most decidedly does not apply. Not only from a popular point of view, but also from that of strict medical science, the right men were chosen for the big occasions; and the tremendous public interest which has been aroused merely reflects the excellent organisation of the Congress and the discretion of the Committee which took it in hand."

[May not the public press be credited with the greater amount of the "public interest" exhibited—at any rate on the popular side?]

"It would be idle, however, to pretend that every speaker in every section contributed usefully to the proceedings; or that the advertising pseudo-scientist was completely suppressed. But this not alter the fact that the opportunities of this type of medical man were firmly, yet tactfully, curtailed as much as possible; and that in general an extraordinarily high level of scientific medicine was maintained. Again, it is true that very few new facts emerged, and that the great majority of the 'reporters' of the twenty-six sections and sub-sections merely recapitulated the researches and advances of the last few years. But this very repetition, irritating as it may be to the specialist who is fully up-to-date in his own subject and mainly anxious for fresh worlds to be conquered, really constitutes a valuable feature of an International Congress. For by this means the general practitioner, and the specialist, too, have a chance of taking stock of progress, of interchanging views with men of other nationalities, and of surveying the field preparatory to fresh campaigns against disease. Taking a broad view . . . . the Congress was an unprecedented success, not only from the point of view of the doctors, both scientifically and socially, but was equally momentous from that of the general community, whose members . . . . . saw at least enough to interest them profoundly as onlookers with a personal stake in the issues."

So says a contemporary, *The Hospital*. It was not a long step from these remarks to the thought of our Congress of next year, with its similarities and its differences. Perhaps the differences appealed to me more strongly. The Medical Register carried, a year or two ago, nearly 40,000 names. *The British Medical Journal* advertises its issue of Sept. 6th as 30,000 copies. Doubtless a good proportion of these totals apply to men practising out of Britain; the proportion in the veterinary profession is about one-eighth. Assuming that one-sixth of their total are unavailable, there remains over 30,000. The estimated number of guests to the Congress was put at 8000, so that the proportion of guests is just about one-fourth. Now our figures, deducting one-eighth, are roughly 2980, and our guests are estimated at 1200—a proportion not greatly less than one-half.

The fact that the British Government is far less liberal than continental governments towards the profession needs no advertisement. The deduction is inevitable.

Looking now to the popular estimation of the two professions, we may, perhaps, be relatively as well treated by the public press, which did so much for the recent Congress; but consider the divergence of interests. Every man and woman in the British Isles is interested, directly or indirectly, in the practice of medicine. Those who are happy enough not to have interviewed a doctor in their adult life, have wives, children, relatives, friends, some of whom are inevitably less fortunate. What is our case? It is unthinkable that the medical professional could lose in a few years the proportion of patients that were wiped off our books by the reduction of the horse as a tractor. True we have "breed" animals left to us, and the number of dogs, cats, parrots, and canaries for which our clients have some personal feeling are not diminishing; and there is a larger proportion of the agricultural community who acknowledge the value of our services. But, accepting all these—and the smallholder—what proportion of the whole community acknowledges our services even in Public Health measures, or cares a "tinker's anathema" for us or our work?

Turning to the social side, I am sending a list of entertainments as given in *The Lancet*. They—the medicos—like ourselves, have little to thank the State for in that way; but consider the assistance they received on all hands.

"The council and staff of the London (Royal Free Hospital) School of Medicine for Women entertained at the medical school, Hunter Street, Brunswick Square, a large party of foreign and colonial delegates attending the International Medical Congress at luncheon on August 7th. . . . The medical school laboratories were open to visitors, who were also shown over the Royal Free Hospital and the New Hospital for Women."

"On Thursday, August 7th, Sir Alfred Pearce Gould, Dean of the Faculty of Medicine of the University of London, and Lady Pearce Gould gave a garden party at the College, Regent's Park, at which a very large number of the members of the Congress were present."

"The dinner given by the Society of Apothecaries of London on Thursday, August 7th, fully sustained the world-wide reputation of the City Companies for excellence in the science of hospitality and in the artistry of dining. The guests were received by the Master, Mr. W. Bramley Taylor, and the Wardens, Mr. Martindale Ward and Mr. Meredith Townsend."

"On Thursday evening, August 7th, the President and Council of the Royal College of Surgeons of England entertained a large company at a soirée in the College. The guests were received by the President, Sir Rickman J. Godlee, and the Vice-Presidents, Mr. G. H. Makins and Sir Frederic Eve, in the Inner Hall. In the Conservator's Office an interesting collection of microscopical preparations from 1780 to 1812 was on view, and in Rooms VII. and VIII. of the Museum there was an exhibition of historical and anthropological specimens, while Hunterian relics and other objects of much interest were shown in the Council Room."

"The conversazione at the Royal Army Medical College, Grosvenor Road, S.W., on Thursday, August 7th, was a brilliant function, attended during the course of the evening by some 800 people. Surgeon-General Sir Lancelot Gubbins, Director-General, A.M.S., and Lady Gubbins received the guests, who, after partaking of refreshments, were permitted to thoroughly inspect the College, where many striking exhibits were on view, comprising service rations of various armies, with demonstrations of the damage by insects to which they are subject, demonstrations of X ray and high-frequency electricity, methods of water purification and food analysis, clothing and equipment, demonstrations of various tropical diseases and microscopical specimens, field medical and surgical equipment, and so forth. A feature that attracted considerable attention was a cinematograph display of trypanosomes, amœbæ, bacteria, and spirochætæ."

"On Friday evening, August 8th, the Corporation of London gave a magnificent conversazione at the Guildhall to welcome the members of the Congress. The entertainment, which was worthy of the City's reputation for hospitality, had been organised on a very large scale by a special reception committee of the Corporation under the chairmanship of Mr. H. H. Wells. The Lord Mayor, the Right Hon. Sir David Burnett, accompanied by the Sheriffs of the City of London, received the guests in the Guildhall. The spectacle in the Library, Art Gallery, Council Chamber,

and Guildhall was a very brilliant one. Concerts and entertainments were given in the various rooms open for the reception, and there was dancing from 9 o'clock in the Library. In the Guildhall a selection of the Corporation plate from the Mansion House was displayed, and the museum and collection of ancient clocks and watches belonging to the Clockmakers' Company were also open for inspection. An additional delight for those to whom the City's treasures are unfamiliar was the exhibition of the ancient charters granted to the City of London by William I., Henry II., Richard I., and John, and the collection of manuscripts, medals, coins, and badges dating from the thirteenth century."

"A special feature of the entertainments of the Congress was the garden party at Windsor Castle at the invitation of the King on Saturday, August 9th. The invitations were perforce limited to 2000, but it was found that the applicants would very greatly exceed those for whom it would be possible to make adequate provision. Some half-dozen special trains, at intervals of a few minutes, was run between 2 and 3 p.m. from the Great Western Station at Paddington direct to Windsor for a return fare of 2s. On arrival at the Castle the King's guests were received at the grand entrance by the Lord Chamberlain on behalf of His Majesty, the Comptroller of the Household, the Deputy Master of the Household, the Surveyor of the King's Pictures (Mr. Lionel Cust), the Keeper of the King's Armoury (Mr. Guy Laking), and the Inspector of the Palace (Mr. G. E. Miles). . . . Passing on to the East Lawn, this magnificent pleasaunce attracted universal admiration. In large marquees an elaborate tea, with champagne, ices, and abundant delicacies, was provided, the tables being decorated with flowers from the Royal gardens. The spectacle was one of extraordinary vivacity, presenting the most democratic assemblage that has ever occupied that lawn."

"A delightfully intimate and admirably managed excursion was the river party on Sunday, August 10th, on the invitation of the President (Dr. Reginald Morton), officers, and members of the Section of Electro-therapeutics of the Royal Society of Medicine. The guests to the number of 160 embarked on the launch "Royalty" at Westminster Pier at 10.30 a.m., and proceeded up the river, calling at Richmond to take on a few who had failed to catch the boat at Westminster. . . . . Sir James Mackenzie-Davidson, President of the Section of Radiology of the Congress, was present. The day was fine, and the genial care of Dr. Reginald Morton and Mr. Archibald Reid, the chief organising spirits, charmingly seconded by Mrs. Morton and Mrs. Reid, for the comfort of their guests was greatly appreciated by all. An excellent luncheon was served. . . . . On the homeward journey afternoon tea was served. The party reached Westminster pier about 7.30."

"On Monday morning, August 11th, a deputation of the French members of Congress were met at the Royal College of Surgeons of England by the President, Sir Rickman Godlee, when they placed a wreath beneath the bust of Lister, newly executed by Sir Thomas Brock. . . . . They afterwards looked at a collection of Lister's manuscripts, drawings, and instruments, which had been prepared for their inspection."

"At the session on Monday, August 11th, of the Section of Tropical Medicine and Hygiene, Professor Blanchard presented a large gold medallion to Sir Patrick Manson, as an acknowledgment from France of the value of his work in the prevention of malaria. The medallion bears on it a portrait of Sir Patrick Manson, and is the work of M. J. Richet."

"Sir Thomas Barlow, as President of the Congress, gave a dinner on Monday night, August 11th, at the Savoy Hotel, at which some 200 foreign and British members of the Congress and distinguished guests were entertained. Among those, in addition to the delegates from foreign Governments and the presidents of the different sections, and the officers of the Congress, may be mentioned the Archbishop of Canterbury, the Cardinal Archbishop of Westminster, the Dean of St. Paul's, the American Ambassador, the Lord Mayor of London, Lord Haldane, Mr. John Burns, Mr. McKenna, Mr. Sydney Buxton, Sir Archibald Geikie, Sir George Reid, Professor Ehrlich, Professor Harvey Cushing, Professor Chauffard, Lord Strathcona, Professor W. Bateson, Sir Rickman Godlee, Sir T. Clifford Allbutt, and Sir William Osler. The dinner was quite informal, and there was no toast list. . . . . During dinner the Westminster Singers delighted the audience with their admirable rendering of old British songs."

"At the Conversazione given by Lord and Lady Strathcona to the members of the Congress on August 11th, the night was fine and the Botanical Gardens glowed with myriads of fairy lamps, outlining shrubberies and trees and flower beds. . . . . The Royal Artillery Band and the Prince's Red Band added the charm of music; pipers from the Scots Guards played and danced; while the Folk Song Quartet rendered a selection of Ballads. Lord and Lady Strathcona themselves received their guests, who approached, for lack of space, in a sinuous queue. Approximately 5000 persons were present. It was a charming *fête*.

"Under the banner of the Æsculapius Lodge, No. 2410, and supported by the Rahere, the Cavendish, the Sancta Maria, the Middlesex Hospital, the London Hospital, La Chère Reine, the King's College Hospital, and the Lansborough Lodges, a meeting of medical Freemasons in connexion with the International Congress of Medicine took place at Freemasons' Hall on Monday afternoon, when nearly 300 members of the craft were present, including a large number of foreign and colonial brethren. A lodge was opened by the W.M. (Dr. A. P. Beddard) and the officers of the Æsculapius Lodge, and later the Pro-Grand Master of England Lord Ampthill, occupied the chair, Mr. Edmund Owen, P.G.D., and Mr. Ernest Clarke, P.G.D., acting as S.W. and J.W. respectively. . . . . Tea and coffee were served from 3.30 till 4.30, and the arrangements for the meeting were admirably organised by Dr. J. R. Probyn-Williams, P.G.D."

We, a young profession, have have had to make our way. Ignored by the State almost entirely up to 1866, and not much better treated in the following years, we have had to stand "on our own." No reasonable man can deny that we have stood up to what was in front of us, and we are not ashamed of our record. But that has not surrounded us with a host of wealthy friends nor attracted the attention of Royalty. We are "on our own" still. We have friends—good friends—but they are few. We have men amongst us who can, and have, stood forward in this matter of the International Congress: but has it not been left to too few? At a meeting of one of our local societies a few weeks back, the Secretary reported that 40 of the members to whom he had applied *had failed to reply, at all.* It has to be admitted that there are amongst us members who, at most, could only afford a few shillings, but these do not form a numerous section, and to each and every man who has not subscribed I would say as they say in Devonshire, "Du zummut, du gude ef you can, du zummut!"

SOUTH COUNTRY.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting was held at the Grand Hotel, Birmingham, on Wednesday, August 20th, the President, Mr. J. Martin, of Wellington, occupying the chair. There were also present Messrs. Brennan DeVine, L. C. Tipper, S. Woodward, Birmingham; J. J. Burchnall, Barrow-on-Soar; W. H. Brooke, Handsworth; H. L. Pemberton, Bridgnorth; W. S. Carless, Worcester; R. Over, A. Over, Rugby; R. C. Trigger, Newcastle-under-Lyne; H. Collett, West Bromwich; R. Murray, Ruge-

ley; Thompson, Stafford; D. Forwell, Towcester; T. Chambers, Dudley; L. W. Heelis, Solihull; W. E. Ison, Atherstone; W. C. Clifford, Shifnall; T. Whyte, Tenbury; T. Slipper, Sutton Coldfield; W. Grasby, Daventry; and the Hon. Sec., Mr. H. J. Dawes, of West Bromwich.

Two visitors were welcomed, namely, Messrs. W. D. Connachie and W. White, Birmingham.

Apologies for unavoidable absence were announced from Profs. Hobday and Dewar, and Messrs. C. E. Dayus, Parsons, Ringer, W. H. Brown (Northampton), J. Martin, jun., F. L. Gooch, T. L. Hobson, J. P. Carless, W. T. Wilson, T. J. Brain, R. Clunas, T. Bainbridge, R. McGregor, R. Cockburn, F. H. Gibbings, J. W. Coe, A. B Forsyth, E. Woodcock, J. Duckworth, T. J. Prince, R. Hughes, F. W. Barling, John Blakeway, H. S. Reynolds, H. Yeomans, and others.

The HON. SEC. read the minutes of the previous meeting, which were confirmed.

New Members. — The following gentlemen, duly nominated at the previous meeting, were now elected members of the Association:

Prof. W. T. WILSON, Harper Adams College, Newport, Salop, proposed by Mr. Pemberton, seconded by Mr. Clifford.

Mr. R. CLUNAS, Hodnet, Salop, proposed by the Hon. Sec., and seconded by Mr. Carless; and

Mr. J. MARTIN, JUN., Newport, Salop, proposed by Mr. Clifford, and seconded by Mr. Pemberton.

Mr. EDWIN HALL, of Wellington, was nominated by the President, and his name will be submitted for election at the next meeting.

Resignations.—The HON. SEC. reported that Mr. F. J. Taylor, formerly of Moseley, and now of London, had tendered his resignation on account of his leaving the district. They were all sorry, he was sure, to lose Mr. Taylor, who had served the office of President of the Association, and had always taken the keenest interest in its welfare. He moved that it be accepted with regret. This was seconded by the President, who said they could ill afford to lose such enterprising members. The resolution was carried.

The HON. SEC. also announced the resignation of Mr. James Blakeway, and this was also accepted with regret.

RECOMMENDATIONS BY THE COUNCIL.

The HON. SEC. reported that a meeting of the Council of the Association had been held just prior to this meeting, when there were present Mr. Martin in the chair, Messrs. Carless, Grasby, Pemberton, DeVine, Ison, Trigger, R. Over, Brooke, Burchnall, and the Hon. Sec. The following recommendations to the general meeting were made:

1. That Northampton be the next place of meeting.
2. That Mr. Noel Pillers, of Liverpool, be invited to read his promised paper on "Mange."
3. That at the annual meeting at Birmingham next February, Prof. Reynolds, of the Royal Veterinary College, be requested to read a paper with demonstrations on "Canine Surgery," Mr. Grasby kindly undertaking to make the necessary arrangements; and
4. That the affiliation fee of 1s. per member due from this Association to the National Veterinary Medical Association be paid forthwith.

The HON. SEC. reported to the Council that he had received further promises towards the fund in connection with the forthcoming visit of the International Veterinary Congress to London. He regretted to say that 40 members had failed to reply to his circular one way or the other, which he considered scarcely satisfactory.

On the motion of Mr. R. Over, seconded by Mr. Tipper, the above report was accepted, and the recommendations contained therein were agreed to.

THE INTERNATIONAL CONGRESS.

Arising out of the report of the Council, the Hon. Sec. referred to the question of the Guarantee Fund to meet the expenses of entertaining the International Veterinary Congress in London next year. In other countries the Government made a handsome grant towards the expenses, and even entertained the delegates on a generous scale, but they would not get that in England, and it was left to the profession to see that their distinguished guests were properly treated. When they remembered how well the medical profession entertained the delegates to the International Medical Congress only last week, he thought it would not be creditable to the veterinary profession if visitors from abroad were not treated as well as English delegates had been at Congresses elsewhere. There were members who had not yet replied to his circular who he thought would give something, and he made one last appeal to them to associate themselves with the present movement.

Some discussion took place on the best means of reaching those members who have not already subscribed, and the Hon. Sec. said that Sir Stewart Stockman had asked him for a list of all who had not subscribed, with the intention of making a personal appeal to them for assistance before the Fund closed.

THE ROYAL SANITARY INSTITUTE CONGRESS.

The PRESIDENT, who represented the Association at the Congress of the Royal Sanitary Institute at Exeter in July last, reported briefly upon it. He said they must regard with steadily increasing satisfaction the importance which the public were beginning to attach to the veterinary profession in matters pertaining to the public health. He attended the discussions on five papers, all of which were of interest to the veterinary surgeon. He enjoyed his experience very much indeed, and he thanked the Association for giving him the opportunity of attending the Congress.

On the motion of Mr. Trigger, seconded by Mr. Ison, a hearty vote of thanks to the President for representing the Association on the occasion in question.

A COMPLIMENT TO THE HON. SEC.

Mr. TRIGGER said they owed so much to Mr. Dawes, who had been hon. secretary of the Association for twenty years or more, that when they had a chance of paying him a small compliment they ought not to let it pass. As most of them knew, his son, Mr. Howard Dawes, had just come through his college course with flying colours, and in practically every branch of veterinary study had carried everything before him. Mr. Dawes, senr., must naturally be very proud of such a son, and he moved that the congratulations of the Association be tendered to Mr. and Mrs. Dawes upon this happy result.

Mr. ISON said that as one who had been privileged to examine Mr. Dawes, junr., he would like to second the resolution. Mr. Howard Dawes was looked upon by his professors as one of the most brilliant students who had passed through the college for many years.

The resolution was carried by acclamation, and Mr. Dawes, in acknowledgment, said he very much appreciated the recognition of his son's success which the Association had made He hoped his son would become a member of the Association, and that he would take as much interest in its affairs as he himself had done.

SPECIMENS.

Mr. TRIGGER, on behalf of Mr. Coe, who was unable to attend, produced the larynx of a horse which had been slaughtered within the past day or two. The larynx was entirely flat, and it was believed to be the result of an accident, the animal having at one time run into a gate and injured itself.

Several members criticised this explanation of the condition of the larynx, and held the view that it was congenital and not due to an accident at all. Mr. Trigger said that was his own opinion.

Mr. R. OVER exhibited a case of a verminous aneurism in the mesenteric artery. The animal was a thoroughbred foal, which was taken bad a few days ago. It looked a bit dull at first, and was lame in the off-fore leg. The lameness then disappeared from the fore leg and passed into the off-hind leg. The post-mortem showed a certain amount of peritonitis, and there were spots on the bowel with abscesses forming. The kidneys were very enlarged and contained minute abscesses.

Mr. PEMBERTON showed a number of calculi of abnormal size and shape which were removed from a horse by the hand, with good results.

THE TUBERCULOSIS OBDER, 1913.

By BRENNAN DEVINE, F.R.C.V.S., D.V.S.M.,
City Veterinary Dept., Birmingham.

The Tuberculosis Order of 1913 has been so much discussed by the veterinary profession during the past three months that it is difficult to introduce anything new about it, or to bring forward any remarks for discussion which you have not already thoroughly thrashed out. The Order, as you are all aware, came into force on May 1st last. Under this Order clinical tuberculosis of all bovines is compulsorily notifiable. The Order was designed to organise a method of eradication of the more badly infected tuberculous cattle and thereby remove the worst centres of infection from our herds, as well as to reduce the chances of infection to human beings through the milk and meat.

Notification. As regards notification of the disease, the onus should necessarily fall on the owner of the animal, but if a veterinary surgeon meets with a suspected case of tuberculosis in a bovine in his daily practice or otherwise, it is his duty to report it to the local authority. Under the Notification of Diseases Order, the veterinary surgeon is entitled to a fee of 2/6 for each outbreak reported; of course, if the local authorities wish they may increase this fee. I feel sure none of us object to reporting cases of any of the scheduled diseases—every veterinary surgeon nowadays recognises it as his duty to do everything possible to arrest and prevent disease. This may seem a cut-throat policy, and against one's own interests, as eventually all disease may be cleared out and there may be little work left for the veterinary surgeon; notably, Pleuro-pneumonia, Foot-and-mouth disease, Glanders, and Rabies, have virtually been extirpated. But the great tendency, in fact I may say the bounden duty of the members of our profession at the present day, is to concentrate one's aim on prophylactic measures and to carry them out where possible. In addition to reporting suspected cases to the local authority, the veterinary surgeon should also point out to the owner the many advantages to be derived by ridding his herd of those bad centres of infection—the visible clinical cases, and thereby dispensing with further inspection. The veterinary surgeon can do much real good towards eradicating the disease by instructing the owners in the risks they run by keeping infected animals, or by introducing new animals into their herds without having them previously tested. I know of several instances of herds which I have tested in Birmingham and district where but one apparently affected animal has infected several in the same shed during the comparatively short period of six month. Although we cannot hope to clear tuberculosis from our sheds under the present Order, yet we all recognise it is a step in the right direction, and if local authorities efficiently carry out the provisions of this Order the percentage of affected animals must necessarily be considerably reduced, and this, of course, will reduce the risk of infection to human beings.

It would perhaps be premature for me to suggest here that all milking herds should be tested with tuberculin, and that all the re-acting cows should be kept barren and fatted off. All of us who hnve carried out testing with a view to obtaining a tubercle-free herd look on the present Order as only partial and temporary. We have all seen apparently healthy, good-looking, well nourished cows react to the tuberculin test, and if allowed to continue in a herd they affect many others within a short period. At the same time I think it is not unlikely that in the near future some system of testing the milking herds will be taken up by the State, and until some such system is carried out we cannot hope to exterminate tuberculosis from our herds.

Inspection and Examination. The section of the Order dealing with inspection and examination of animals is, from the point of view of the veterinary surgeon, a very important one. The local authority is there instructed to cause a veterinary examination to be made of all suspected cases reported. Though this Order applies to the whole country alike, as other Orders under the Contagious Diseases (Animals) Act, I am inclined to believe that the necessity for its application has not been properly appreciated alike by all the public bodies concerned, or rather, that its meaning has not been equally interpreted by them. If public bodies are known to be lax in the carrying out of the provisions of the Order (and I have reason to believe there are many), or if they evade their duty in any way, the matter should be reported to the Board of Agriculture with a view to having it thoroughly investigated.

Under the same section, the veterinary surgeon is empowered to take samples of milk and of fæces, urine, or any other abnormal discharge, for purposes of diagnosis. If tuberculosis of the udder is suspected a sample of milk will naturally be taken for microscopical examination. Tuberculosis of the udder is rarely a primary disease; it is usually secondary to lesions in the thoracic or abdominal cavity, the disease extending to the udder usually through the lymphatics. The affected quarter at first usually shows a swelling without heat or pain. This gradually becomes hard and spreads over the whole quarter. The hardening and enlarging of the quarter is unaccompanied by any inflammatory symptoms. The milk at first remains normal in appearance, but later becomes thin and watery looking. As a rule it is one of the hind quarters that is first attacked and the disease may affect later all the four quarters. The induration usually begins high up, deeply situated in the depth of the quarter. When taking samples from suspected quarters the udder should be cleaned, and the milk should be collected in a sterilised bottle direct from the teat. The milk is taken from the suspected quarter only, and if more than one quarter is suspected separate samples should be taken from each quarter. I have been in the habit of taking stripping from the udder, and I believe one is more likely to find the tubercle bacilli in the last milk drawn than in the fore milk, though I have met with cases in which the fore, middle, and last milk was found to contain tubercle bacilli. The milk should be examined as soon as possible after collection; if the milk is to be kept for any length of time before being examined it should, immediately it is extracted from the cow, be cooled down to 48 degrees F. The quantity of milk taken should be, where possible, at least 4 ounces. The milk is then microscopically examined, as follows; it is first centrifugalised. The time taken in this process depends on the power of the centrifugal machine, but with a good powerful machine the milk should be kept

on at least 20 minutes. After centrifugalising the milk, cover glass preparations are made from the sediment and cream. It may be necessary to make several examinations from the same milk, as in the early stages of the disease the bacilli are sparse in number. After the films are made on the cover glasses and fixed by heat they are stained by the Ziehl-Neelson method, counter stained methylene blue and examined under ⅛ oil immersion lens. As regards the microscopical examination of the fæces as an aid to the diagnosis of tuberculosis in cattle, I do not consider it of much value. Granted one finds acid-fast bacilli on microscopical examination of fæces of cattle, we are no further forward in our diagnosis. The acid-fast bacilli detected may, or may not, be tubercle bacilli, but one cannot give a positive opinion, because so many other acid-fast bacilli are likely to be met with in the fæces of cattle, such as Johne's bacillus, Timothy grass bacillus, etc. As far as I can see, the microscopical examination of fæces alone for the purposes of diagnosis of tuberculosis in cattle has no practical value. Urine is another sample mentioned in this section which may be taken for diagnosis. The examination of the urine is carried out on the same lines as the milk, the urine being previously removed with a sterilised catheter. Whenever you get tuberculosis of the urinary system—of the kidneys, ureter, bladder, etc., it is generally found associated with a generalised tuberculosis, and rarely seen separate. The words "Any abnormal discharge" in the Order give one power to stake a specimen from any of the natural orifices. As far as I am aware the most valuable discharge for diagnostic purposes is one derived from the respiratory apparatus. Such a discharge may be collected in a swab from the pharynx, especially if the animal is made to run some distance to cause coughing. I understand there is an instrument used in Germany for penetrating the trachea and taking specimens of mucus on swabs direct from the bronchi. In advanced cases of pulmonary tuberculosis in cattle the mucus removed from the lining of the bronchi is particularly rich in tubercle bacilli. In examining specimens of mucus, films on cover glasses are used fixed by heat and stained in the same way as the milk sediment. In examining human sputum for phthysical cases the percentage of successful results has been greatly increased by the use of antiformin, which dissolves the animal matter other than the acid-fast bacilli. The method employed is as follows: The sputum is placed in a test tube and a five per cent. solution of antiformin is added. This is then shaken up and allowed to stand half an hour and then centrifugalised; the top fluid is poured off and the top layer of the sediment is examined microscopically. I understand the same method is now successfully employed in the microscopical examination of milk samples.

Under the same section of the Order, provided the Inspector has the written consent of the owner, the animal may be tested with tuberculin. The tuberculin test is the only applicable and certain test we have to detect cases of tuberculosis where no positive signs of the disease are apparent. With the tuberculin test we can state definitely within 24 hours whether the animal is affected with tuberculosis or not. The use of tuberculin is harmless, but one must be careful in applying the test to avoid any errors in diagnosis. In most cases when the situation is explained to the owner, there is seldom any difficulty in getting him to acquiesce in having the animal tested. Tuberculin may be used for testing animals in various ways; the ophthalmic, endermic, intradermic, or subcutaneous method may be carried out. I have tried all four systems, the last named being the commonest form, and the one with which I have been most successful. I consider the subcutaneous method of testing with tuberculin thoroughly reliable, and when properly carried out leaves little room for doubt. In one herd of 36 cows which I tested in December, 1909, the result showed 24 cows were affected and 12 were free. We had here in what was considered a beautiful herd of dairy cows 66 per cent. of tuberculous animals. The cows looked so well that one could not help feeling a little doubtful about the reliability of the test; however, the reactors were separated from the free, and all the affected were gradually cleared out of the herd by being fattened and slaughtered. When ready for slaughter they were killed on the place, and I had an opportunity of making a post-mortem examination on every animal. The result was that the tuberculin test was verified in every case. In the majority of cases tuberculosis was found in the lungs, and in a few in the pharyngeal glands only. I know there are some practitioners who do not place the reliance on the tuberculin test that it deserves. They say a badly affected animal may not react, and that a non-tuberculous animal may. I would advise those people not to use tuberculin out of a bottle which was opened months ago and has since been standing on a sunny shelf in the surgery. The tuberculin should be used fresh and out of a newly opened bottle, the dose injected should be rather over than under, and if there is a suspicion that a cow has recently been tested the temperature should be taken from the second to the 21st hour with a tested thermometer and by a reliable person—not the farmer or his man. By using care in the application of the tuberculin test we can reduce to a minimum the doubtful and erroneous conclusions.

I should not like to pass this part over without saying a word as to the control of the sale of tuberculin. There is no doubt that the broadcast way in which tuberculin is sold by many firms in this country has a good deal to do with the uncertain results obtained. It has its effect on high priced show cattle and on those exported, as they are often injected previously by the owner, and that the manufacture and sale of tuberculin should be State controlled is a necessity becoming more apparent each year.

Post-mortem Examination of Slaughtered Animals.—Under this section of the Order the veterinary surgeon is to make a post-mortem examination of any animal slaughtered under the Order. In the great majority of cases a definite diagnosis can be arrived at without having to make a microscopical examination of the affected parts. The more common seats of tuberculous lesions in affected cattle are in the pharyngeal, mediastinal, and lymphatic glands. The naked eye appearances are so well known that it is not necessary to dwell on them here; suffice it to say that in the early stages you find necrosis, later followed by caseation. The principal lymphatic glands to examine on making a post-mortem under this Order are as follows: Pharyngeal, submaxillary, mesenteric, supramammary, hepatic, renal, cervical, pectoral, suprasternal, suprascapular, iliac, pelvic, and precrural. In doubtful cases, when one is not quite sure that the lesions are tuberculous, sections should be made of the suspected parts and examined microscopically.

Cleansing and Disinfection.—Section 12 of this Order is one that has been overlooked a good deal. Under the Board of Agriculture Diseases of Animals (Disinfection) Order of 1906, the following is laid down:

The place or thing or part thereof required to be disinfected shall be thoroughly coated or washed with

(*a*) A one per cent. (minimum) solution of chloride of lime containing not less than 30 per cent. of available chlorine; or

(*b*) A five per cent. (minimum) solution of carbolic acid (containing not less than 95 per cent. of actual carbolic acid) followed by a thorough sprinkling of lime wash; or

(c) A disinfectant equal in disinfective efficiency to the above mentioned solution of carbolic acid, followed by a thorough sprinkling with limewash.

In carrying out disinfection following the removal of infected animals, the first and most essential part is to have the place thoroughly cleansed; plenty of water, soda, soap, and brushing, and follow this up with the application of a fluid disinfectant equal in germicidal power to any of the above. A 10 per cent. solution of sulphate of copper is a cheap effective form of disinfection for outbuildings, but it has the disadvantage of corroding metal parts. A 10 per cent. solution of carbolic acid followed by limewash is as convenient a method as any. Under Section 44 of this Order there is an extension of Sections 19, 20, 43, and 44 of the Diseases of Animals Act of 1894. This Section grants to inspectors many powers over those cattle owners who, by hiding stock or otherwise, attempt to evade the law. It is hoped that the local authorities all over the country will effectively carry out the provisions of this Order, and will not hesitate to take advantage of its many facilities of ridding their districts of all those cases of tuberculosis which are affected by this Order.

At the close of the paper, Mr. DeVine submitted specimens under the microscope of tubercle bacilli from milk and of the bacilli of Johne's disease, for which the tubercle bacilli is likely to be mistaken.

Discussion.

Mr. Trigger said he had listened to the paper with greater pleasure than he had anticipated, because altbough he was familiar with the Order, Mr. DeVine had presented the subject in a most attractive form. He thought they must all agree, though he did not take a rosy view of it, that in attacking wasters they were doing a big work in the right direction. The essayist rather staggered him when he said that one apparently healthy cow was proved to have disseminated the disease among a herd in the short space of six months. He did not think local authorities, at least at this stage, wanted to embark on anything very heroic. County Councils had no desire to go beyond absolute diseased animals, and those in an advanced stage of the disease. He hoped that by slaughtering these wasters they would do good, but he did not think it was quite sufficient. Only the previous day he saw a cow in the market, which he ordered out, and she was afterwards sold for £2. She had tuberculous udder, and was in the last stage of the disease. If knackers would give farmers £2 or more, it was no use veterinary surgeons valuing them at 30s., as was generally done. They must value cows a little more highly. They had to give the value of a cow supposing she was tuberculous, and supposing she was not tuberculous, and that was often rather a difficult matter. If the cow was a waster, the veterinary surgeon may lose nothing by sending her to the knacker, but if she turns out not to have been diseased, and he had previously valued her if free from disease at, say £20, he soon got into hot water with the County Council for having her slaughtered. He thought they attached too much importance to the contagious nature of the disease and overlooked other causes of the spread of the disease, he did not mean heredity, but the hygienic and dietetic conditions under which the animal lived. He mentioned a case in which water from a colliery was run through land where cattle drank it. The cattle, which were all right before, became affected, and when the water was diverted from this land the owner gradually got his herd better again. Prof. McCall once told him of a similar case, suggesting that the spread of the disease was caused by the cattle drinking contaminated water. He always found on farms near collieries a lot of what were called wasters. He did not know what was to be done in the matter of auctions, for as far as he knew very few local authorities had any inspectors of auctions. He took the law into his own hands in the case he had just referred to, but he was met by the statement that the same animal could be taken into other markets and not get stopped.

Mr. DeVine: Veterinary surgeons should report the matter to the Board of Agriculture when local authorities fail in their duty.

Mr. Trigger added that he hoped this Order was the beginning of a new era. It was certainly letting the public know that something was being done in the eradication of a dreadful scourge, and he agreed with Mr. DeVine that in a few years the State would insist on all animals supplying milk to the large towns being tested with tuberculin.

Mr. Tipper said he was a member of the Executive Committee of an important County Council, and he would like to say in reference to Mr. DeVine's criticism on local authorities for not acting as expeditiously and as energetically as they might, that Mr. DeVine had overlooked the fact that the Board of Agriculture themselves had advised local authorities not to put too much energy into the Order in its early days, and he thought quite rightly too. There were difficulties which they all realised. One result he had went to show that the pessimism that existed about tuberculosis among stock was a little too pronounced, because the returns so far given as to animals slaughtered under the Order were not very considerable. But the point he wanted to bring before the meeting was this: they were aware that the question of compensation had been delayed in this country for years because a basis of compensation could not be arranged. There was the demand on the part of the owners for compensation, and the refusal on the part of the Government to pay compensation, and there had been a sort of half-way arrangement which enabled this Order to be put into operation. It was the absence of a proper basis of compensation which they were suffering from to-day, and if it became known that the administrative expenses were three or four times as great as the amount paid in compensation there would be an outcry from the ratepayers. It was generally understood that half or a third of the money would be found by the Government. In the County of Worcester, where their friend Mr. Carless was one of the inspectors, he found that out of 31 suspected cases reported, 17 were found to be suffering from the disease and 14 were non-tuberculous. Sixteen had been slaughtered and one remained to be slaughtered, the owner having objected. The total amount of compensation paid was £39 17s. 6d., and they had received as salvage £17 8s. 9d. They had a claim on the Board of Agriculture of £11 4s. 4d. The total expenditure by the Committee was £157 8s. 5d., and they received from the Government £11 4s. 4d. They should try to bring pressure on the Board of Agriculture so that the basis of compensation should also include a share of the administration expenses. The highest compensation his committee paid for an animal was £5 5s., and in another case it was £4 10s. As far as the Worcestershire County Council was concerned, they were as advanced as most County Councils in the country, and their inspectors were being increased.

Mr. Carless said if a man was an inspector under the Order, he was afraid it was not a fact that he got 2s. 6d. for every case he reported. It was very difficult for a veterinary surgeon to report the case of his own client. If he were to report some of his clients he would soon lose them altogether. With regard to tuberculin, he had used it for testing purposes hundreds of times, and in a herd of 20 he generally got seven or eight that reacted, but it was not always the poorest animals that did so.

Mr. CHAMBERS related his experience of the Order, and said he did not think it was going to answer as at present administered.

Mr. WHYTE asked whether in the case of a suspected cow it would not be better to fatten it during the period of isolation, so as to make it ready for the butcher.

Mr. GRASBY said the instructions issued to them as inspectors as to the method of taking the milk, etc., seemed to be very elaborate, but there were difficulties which a practitioner appreciated better than those who had drawn up the Order. He mentioned a case in his own experience in which milk was being sent to London from a dairy of 36 cows, and on the 20th of June samples were taken at Harrow and examined at the Lister Institute. A month later a report came to the local authority saying evidence of tuberculosis was found in the milk. They went over the herd in the usual way, but it would have been absurd to isolate any one cow. They fixed on three, the others appearing to be perfectly healthy. Specimens of the milk were sent to the Veterinary College in London, and acid-fast bacilli were found. The cow that was found to be affected was isolated, but the owner declines to have her slaughtered unless he is paid compensation for her milk until such time as she would have run dry. He threatened to proceed against the local authority for the loss of profit owing to the milk from these three cows not going to London. It was all very tedious work, and there was bound to be a policeman on the ground as well as the sanitary inspector. Such things as that worried clients, and made the Order very unpopular.

Mr. PEMBERTON asked whether testing with tuberculin affected a cow in calf? He tested three cows that were in calf, and two of them slipped their calves. As for reporting cases, he was not going to report tuberculosis at 2s. 6d. a time. It was absurd to think they were going to offend their clients for the sake of half-a-crown. He commented on the absence of properly qualified inspectors from markets.

Mr. SLIPPER said that as far as he knew there was no inspection of the markets in Staffordshire at all.

The PRESIDENT said his thanks were due to Mr. DeVine for his kindness in preparing such an interesting paper that afternoon, and however much they knew the Order, his remarks had given them food for reflection. He mentioned a case in his own practice where water from a colliery was the suspected cause of tuberculosis in cattle. He could endorse what other speakers had said about the inefficient manner in which markets were inspected. He also agreed with those who objected to the present system of compensation. It was not only inadequate, but it was also frequently unfair.

Mr. DEVINE, replying to the discussion, said he felt greatly flattered by the reception given to his paper. With regard to the association of pit water with tuberculosis, he would like to see an analysis of the water before expressing an opinion himself, as he did not see how water coming out of the ground in that way could contain tubercle bacilli. It might, of course, contain some chemical substance which might so lower the animal's power of resistance as to make it more likely to contract tuberculosis. He was interested in Mr. Tipper's figures as to the working of the Order in Worcestershire. Mr. Tipper mentioned that there were not so many cases as had been expected, and then he went on to say that the Board of Agriculture had asked local authorities to "go slow" at first. That being so, the returns which Mr. Tipper quoted could not possibly be taken as any criterion of the number of diseased animals in the country. He agreed that the Government should pay a fair share of the working expenses of the Order, although that was perhaps not a matter for them as veterinary surgeons. Veterinary surgeons had to get their own bread and cheese, but the question of apportioning the cost of administration affected the ratepayers. When they considered the number of people in London who were consuming meat and milk who paid nothing in the way of compensation, the cost of which came on people living in the country districts, they would see at once that it was a national and not a local question. Mr. Carless suggested that a veterinary inspector would not get 2/6 per case he reported outside his work as inspector. If he went out on County Council business, it would be a different matter, but if he met with a case in his ordinary practice and reported it, he would surely be entitled to his fee. As for the difficulty of reporting the case of a client, which more than one speaker had referred to, he wanted to emphasise that it was their duty to explain the matter to clients and advise them that what was done was really in their own interests in the long run. Mr. Whyte had asked whether it would be right to fatten a cow that was in isolation; his own experience was that no good would result, but the owner could try to do so if he wished. In the case mentioned by Mr. Grasby, he did not think the owner had any claim on the local authority for damages. That point had been decided in the case of holding up horses that were suspected of suffering from glanders. In answer to Mr. Pemberton, he did not think it would harm a cow in calf to apply the tuberculin test. If they used the Pasteur tuberculin, he advised them to get it direct from Paris, and not from agents, as it might be months old.

Mr. PEMBERTON: I get it in hermetically sealed tubes.

Mr. DEVINE: Yes, but you want to have it fresh. Some years ago, he tried all the different tuberculins on the market, and he found that M'Fadyean's tests were as good as any. He bought his tuberculin in five dose tubes, as it was better than getting the larger tubes, using only a portion at a time, and thus allowing the remainder to become stale. He was a great believer in the subcutaneous method of testing, and he had rarely got a doubtful reactor. Testing with tuberculin took up a lot of time, and carelessness often explained many of the uncertain results that were spoken to. He recommended them always to give a full dose rather than an under dose They were more likely to go wrong with an under dose than with an overdose. He tested in ordinary cases at 3, 9, 12, 15 and 18 hours. As regards County Councils and auctions, he thought veterinary surgeons themselves had been very lax in not taking the opportunities that offered themselves under this Order, and if the local authorities did not do their duty when their attention was called to a case, he advised them to complain to the Board of Agriculture.

On the motion of Mr. Grasby, seconded by the Hon Sec., Mr. DeVine was thanked for his paper and his remarks.

Before separating the members partook of tea together.

H. J. DAWES, F.R.C.V.S., Hon. Sec.

SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

A meeting was held at Lanark on the 14th June. The members present were:—The President, Mr. Peter Wilson, Lanark; Prof. O. C. Bradley, Edinburgh; Messrs. J. Storie, East Linton; A. Baird, J. Riddoch, Prof. Gofton, and James Henderson, Hon. Sec., Edinburgh.

Visitors: Messrs. A. M. Trotter, Prof. J. R. McCall, Glasgow; H. Begg, Hamilton: R. N. Lewis, Dumfries; McDonald, of *The North British Agriculturist*; and Stirkie.

Apologies for absence were received from Professor Dewar, Messrs. Rutherford, H. Thompson, J. Aitken, T. P. Young, Bannatyne, D. M. Reid, J. Borthwick, D. Hamilton, W. Anderson, J. Player, Reid, J. F. McIntyre, J. Peddie, T. M. Inglis, Mcfarlane, and Peggie.

Those members and visitors who arrived at Lanark early enough were entertained by the President to a most enjoyable excursion to the Falls of Clyde, and afterwards to lunch at the Station Hotel.

The meeting began shortly after 3 p.m.

Mr. R. RUTHERFORD, proposed by Prof. Bradley, and seconded by Mr. P. Wilson, was unanimously elected Hon. Member of the Society.

A letter of resignation was received from Mr. J. Basil Buxton, and on the motion of the Hon. Sec., seconded by Mr. J. Storie, his resignation was accepted.

At our last meeting on 1st February, Mr. Cameron, of Berwick on-Tweed, made a motion regarding the Milk and Dairies Bill, which was then under discussion, calling upon the R.C.V.S. to take active steps for its improvement, which motion was carried.

The following reply has been received from Mr. Fred Bullock, Secretary to the R.C.V.S.:

"April 14.

"Dear Sir,—I submitted your letter of the 8th inst. to the Parliamentary Committee at its meeting on Thursday last, when the Milk and Dairies Bill was under consideration. I have to inform you that a resolution was passed with regard to Section 2 of the Bill, as follows:

(*a*) *Milk and Dairies Bill.* "That in the opinion of this Committee the following amendments are required in this Bill: Section 2 (1) To substitute the words "to take with him" in place of the words "if accompanied by" in lines 6 and 7, the last clause thus reading: "and to take with him a veterinary inspector or some other properly qualified veterinary surgeon to inspect the cattle therein."

Section 2 (2) in line 21 to substitute for the words "and the cattle therein if accompanied for the purpose of the inspection of the cattle by a veterinary inspector or some other properly qualified veterinary surgeon," the words "and shall require a veterinary inspector or some other properly qualified veterinary surgeon to accompany him and to examine the cattle therein."

(*c*) That a Sub-committee consisting of Dr. Bradley, Mr. Garnett, Sir John M'Fadyean, Prof. Mettam, Mr. Mulvey, and the Solicitor be appointed to take such action as they may consider necessary for the purpose of securing the insertion of these amendments in the Milk ano Dairies Bill and the Milk and Dairies (Scotland) Bill."—Yours faithfully,

(Signed) FRED BULLOCK.

New Members. Mr. JAS. PARK HAMILTON, M.R.C.V.S., Dundee; and Mr. R. R. ARTHUR, M.R.C.V.S., Auchtermuchty, having been nominated at last meeting were duly elected members of this Society, on the motion of Prof. Gofton, seconded by Mr. J. Storie.

MAN AND MICROBE: FRIEND AND FOE.

By Mr. J. STORIE, M.R.C.V.S., East Linton.

When Darwin wrote of the struggle for life that was continually going on throughout all nature, and which has had such a far-reaching influence on the evolution of all living things, he had in his mind's eye more particularly beings of the same species struggling and fighting for the necessaries of life. Although he was not aware of the part bacteria took in this struggle by their production of disease, he was aware that the larger parasites did. He wrote, "The dependency of one organic being on another as of a parasite on its prey lies generally between beings far remote in the scale of nature." How significant and prophetic these words were can only be appreciated now by our knowledge of microbic disease. When we think of the innumerable forms of life, animal and vegetable, we cannot comprehend any greater contrast, any two forms, further remote than man and microbe. Between these two perhaps the greatest struggle of all is taking place. Man, lord of creation, with dominions over the beasts of the field, the fowls of the air, and the fishes of the sea, and microbe the simplest and most insignificant to all appearance of living things Can you picture in your mind's eye a tiny speck of jelly, so minute that magnified 500 or even 1000 times, its structure is so simple that unless stained it cannot be distinguished, and let the mind wander still further into the unknown and try to imagine a something that the most powerful microscope cannot picture and the finest porcelain filter cannot catch. Simply by their works ye shall know them Nevertheless these little objects hold an unique distinction, in so far that there are certain species which are not yet by any means under man's control. They are even threatening his supremacy, and taxing all his ingenuity to keep them in check We, as a profession, must take a foremost part in this great struggle against disease, and do our utmost to ensure man's victory over this pertinacious enemy.

There are many forms which, if properly handled, are of great economic value, but they hold a much more important place in the world's history. We depend on certain species for our very existence. No microbe, no man. Without the microbe, there would be no grass or vegetation, without the grass no flesh, and without flesh or its equivalent no man. In the past microbes have been looked upon by the ordinary observer as obnoxious little wretches, working mischief or dealing out death when ever they appeared. Now they are recognised as a power in the land. Friends far outnumber, foes. They abound almost everywhere in earth, in air and water. In the animal body there are scores of species. In dairying, in the curing of tobacco, in the tanning of leather, in brewing and distilling, in the purification of sewage, and in innumerable other processes which are daily increasing in importance and number they are invaluable, but by far their most important work is in the soil, where they act as scavengers, breaking down dead animal and plant matter. They also play an active part in nitrification. Without them the cycle of life could not be maintained. Their numbers in the soil can hardly be estimated. Cultivated soil teems with myriads of these minute forms of life—some for good, some for evil. They are most numerous at a depth of from 8 to 20 inches, and in a single inch of this soil (about 15 grs.), as many as 500,000 have been found.

In connection with farming, not many years ago tillage was looked upon as merely a mechanical operation, but a great advance was made when the biological aspect was opened up. There is perhaps no industry in which the study of bacteria is of greater importance to mankind than that of dairying. Cow's milk, in the first place, takes such an unique position as a food, especially for young children, that the presence in it of harmful forms of bacteria may have a serious effect. On the other hand, friendly forms have a most beneficial effect on the manufacture of butter and cheese. Since the discovery of bacterial starters the latter processes have been improved and simplified to an extraordinary extent. It is well known that milk which is, as I have already said, so valuable as a food for mankind, is at the same time a most suitable diet for bacteria, wherein they thrive and multiply. On this account, in certain cases it sometimes acts as a medium for the conveyance of most deadly poisons into the systems of young children. The fact that the necessity for a supply of pure milk is of vital importance has taken a long time to stir Parliament to take action in this matter. At last, how-

ever, what with the Tuberculosis Order and the Milk and Dairies Bill, matters appear to be in a fair way of being realised. From an economic point of view a most important victory has been gained.

Food Preservation.

Perhaps no triumph of modern times over the microbes is of such great economic importance to this country as that over the putrefactive bacteria in the preservation of the nation's food. The refrigerator, assisted by our ships and the railway, have brought the sheep and cattle farms, the gardens and dairies of the whole world to our very doors. But for this victory our working people could not be fed. Without doubt the breeding and rearing of bacteria will become a science. Their good points and their bad ones will have to be studied, the useful varieties preserved and the others destroyed. New varieties will be produced, just as in the case of other plants.

Pathogenic or Disease-producing Bacteria.

Bacteria are divided into two classes, roughly speaking, saprophytes and parasites. The saprophytes live on dead organic matter. Parasites live and thrive on the living bodies of higher forms. Strictly speaking, the pathogenic or disease-producing type, belong to the parasites, although under certain circumstances the saprophytes may cause disease by their action on some parts of the tissues which may have become dead, by the production of their ptomaines, and no doubt there are others which may become parasitic on occasion. In comparison with the endless number and wide distribution of saprophytic bacteria—there are something like 2000 known species—there are in reality only few pathogenic species, perhaps 30 or more, known. A very few of these are able to perpetuate themselves outside the animal body, the better known are those of tetanus and anthrax. The great majority are dependent for their maintenance on other living bodies. They vary in an extraordinary degree as to how they affect animals, being pathogenic to one species and harmless, or almost so, to another.

Individuals of the same species of animal also show great divergence. Following infection by the microbe, one may be affected seriously, another slightly, and another not at all. In studying effects, both the microorganism and the animal attacked must be taken into consideration. Much depends on the path by which the infecting microbes enter the body whether they produce disease or not. Certain species may come in contact with a breach in the skin and produce no bad effect, but the same if swallowed may give rise to fatal infection. Conversely, forms that are virulent when entering by a wound may cause no ill effect when swallowed.

The animal body is well protected against invasion. The body itself is covered with the skin which no microbe can pierce unaided. The mouth, nasal cavities, respiratory and digestive tracts are protected by a covering of mucous membrane, and the healthy stomach produces a powerful antiseptic in the form of hydrochloric acid, which should account for many species that may be swallowed.

The mere presence of bacteria in the body is not in itself harmful. Their action depends on the production of a chemical product which is known as a toxin. The virulence of any particular microbe is according to the quantity and quality of the toxin it produces. These toxins are only produced when the bacteria are multiplying, so that they may be present in fairly large numbers in some parts of the body without causing any disturbance. However, if some change takes place—a change to environment more suited to their habits, then they rapidly increase and their poisons become diffused throughout the system and produce disease.

What are the means of defence by which pathogenic germs, even after their entrance into the tissues and fluids of the body are disposed of, or at least prevented from carrying out their depredations? The opportunities for such an invasion are so numerous, and the contact of animals with disease germs so constant, that but for some subtle power all would succumb. The power which enables the body to accomplish this is spoken of as resistance, and when specially marked, immunity. This may be possessed by an animal naturally—"natural immunity," or it may be acquired by an animal either by passing through an attack of the disease or by artificial means—by inoculation; this would be acquired immunity.

Susceptibility and immunity are problems essentially chemical, involving reactions between the tissues of the host and the toxins produced by the bacteria. If we are to understand disease so as to effect a cure, we must study these complex chemical reactions. In an outbreak of contagious disease among farm animals you must all have observed how the effects differ in the various individuals. One dies, another never displays a single symptom, and a third has a more or less severe attack. How do you account for these differences? Doubtless you will say it may depend on the number and strength of the infecting organisms. That may be true, but in considering the animals, you would say in the first place that the bodily health of each was different at the time of attack; possibly in the case of the one that succumbed, and the other that was severely attacked the powers of resistance would be less. Now, we must not confuse mere appearances of bodily health and strength with immunity to disease. What is this immunity then? In the first place the body is defended by the leucocytes or white corpuscles of the blood, and in the second place by certain bactericidal substances in the blood serum, which kill or render the invaders harmless. The leucocytes in the role of the defenders of the body are known as phagocytes or eating cells. It is not quite agreed whether they act as soldiers or scavengers, or perhaps both.

Metchnikoff's Theory.

When bacteria, or any foreign substance, gains entrance into the body, a definite reaction on the part of the phagocytes takes place at and around the place of entrance. Although at first a diminution in their numbers takes place, in a short time they are attracted in large numbers to the spot. They possess the remarkable power of penetrating the walls of the blood vessels. When we remember that these walls are entire, it is astonishing how they manage this without leaving any leakage or perforation. On the entrance of bacteria to a wound, for instance, the leucocytes congregate in large numbers in proximity to the breach and attack the invaders in quite a military style, and if in sufficient numbers, they doubtless prove the victors. Metchnikoff's theory is that the phagocytes both eat and digest the microbes.

Ehrlich has a different theory. He believes that two substances must be present in the blood before immunity can be established. One to make the microbe vulnerable and the other to kill it. The microbe holds on to the first with one hand, and to the deadly bactericide with the other, and thus joins them together.

Almroth Wright has still another theory. He believes that normal blood contains substances which he calls opsonins or cookers, that render the bacteria digestible before the phagocytes can absorb them.

There seems no reason to doubt, however, that the phagocytes play the most important part in the defence of the body against the attack of bacteria. Consequently, if any means could be discovered by which their numbers could be sufficiently increased, a great step in advance would have been made. In connection with this, chemical substances, known as auxetics, have

been found to increase cell proliferation. In this, as in the case of bacteria, we have to contend with foes as well as friends. Certain of them when applied to the multiplication of the leucocytes, if properly handled, may solve the problem of the treatment of microbic disease by their power of increasing the phagocytes sufficiently to destroy any number of bacteria which may gain entrance to the body. At the same time it has not been overlooked that the possible action of other auxetics on another class of cells may, by their abnormal increase, produce cancer. I am sure we hope and pray that this riddle may be solved soon, and whether these auxetics may be produced from gaswork's pitch or tar the discovery will not have been made a day too soon. If the cause of cancer was once known no doubt a means of cure or prevention would soon follow.

Attenuation of the Virus.—Bacteria can be cultivated and caused to vary widely in virulence, so that in many instances they can no longer do harm to animals which would otherwise succumb to their influence. Pasteur found that exposure to air, certain conditions of nutriment, varying temperatures, etc., had their effect. Anthrax bacilli, grown at a high temperature for 24 days lost their virulence so that they could no longer kill a sheep. He also discovered that the virulence of a parasite for one species of animal may be diminished by its growth in another. It was also known that the blood serum of a rabbit could kill unaided the anthrax bacillus. In this way he discovered that vaccines could be obtained which would induce a mild attack of disease such as would protect the individual from a second attack, just as vaccination with the lymph of cow-pox protects an individual against an attack of small-pox. In another way the virulence can be reduced by growing cultures in weak antiseptics such as carbolic acid.

Inoculation.—*Variola.* This prepared the way for the practice of inoculation which no one can doubt has a great future before it. The real struggle between man and microbe was inaugurated by the discovery in the first place that a person who had suffered from small-pox did not contract the disease a second time, and in the second place that the disease could be produced in a milder form by arm to arm vaccination, and in the third place, it was found that a person who had had cow-pox was immune to small-pox. For long it had been known that arm to arm vaccination produced the disease in an attenuated form, but this method had many drawbacks, and a fair percentage of deaths followed it. It was found later that the organism which produced small-pox was so much modified in its behaviour and virulence by its passage through the body of the cow, which is more resistant to the disease than man, that the practice of using calf lymph was instituted, and is that which is carried on at the present day.

The following diseases have been experimented with on the same lines, but with varying success.

Tuberculosis.—The tubercle bacillus was discovered by Koch in 1882. It attacks man, monkeys, cattle, horses, dogs, cats, pigs, and birds, reptiles and fishes. It is responsible for the death of one-eighth of mankind. It is undoubtedly the disease of animals that falls heaviest on agriculture, causing more ravages than all the other contagious diseases put together, at least such is the case in this country. Unlike other contagious diseases, which affect us more or less at intervals, tuberculosis pursues its course of destruction slowly but surely, in many cases the patient throwing out the deadly bacilli at the rate of thousands per day, unknown and unheeded by all concerned. In others it may lie dormant for months and for years in the body, holding its citadel against its enemies the phagocytes in some corner of the lung perhaps, ready whenever opportunity occurred to advance to attack any vulnerable point. Drying seeems to increase its resistive powers, it can deprive itself of all or most of its water and assume an inert form, and can survive without any nourishment whatever, and whenever it finds a suitable *habitat* can spring into active life at once and germinate like a seed. In the case of human beings the sputum is the greatest danger. A tuberculous patient spits on the floor, the sputum which may contain thousands of the microbes dries and mixed with the dust, especially in insanitary dwellings, rises and mixes with the air is drawn into the lungs where it may develop and produce the disease. This danger is equally present in byres where affected cows may be coughing and sneezing out infective discharges day after day. In badly ventilated and dirty buildings, you can imagine how the bacilli find a lodgment in the crevices of the walls and roofs where they may remain for an indefinite period in the dust and cobwebs, and, on being disturbed by flies or a gust of wind, drop into the air, fall on the food, into the milk pail, or may be inhaled by the other occupants of the byre. Outside the body the bacillus has great powers of resistance. It can live for a long time especially in dirt, dust, and darkness. Dried sputum has been found to contain live bacilli after two months They resist putrefaction for several weeks and have been found alive in parts of a tuberculous lung that had been buried for the same time, they can withstand the action of the gastric juice for several hours.

The discovery of tuberculin by Koch has been of inestimable value in controlling the spread of the disease, as animals affected, however slightly, can be isolated, and if this were carried out faithfully the sources of infection would be greatly curtailed. Koch had great expectations of its curative effect, but we all know how disappointing the results proved.

Koch prepared his tuberculin by the following method: The bacillus is grown on sterile veal broth, to which has been added 1 per cent. of peptone, and 4 per cent. of glycerine. After six or eight weeks the culture is evaporated to one-tenth of its bulk over boiling water and filtered through porcelain. The filtrate is now tuberculin.

One of the greatest therapeutic triumphs of the 19th century was dependent on the diseovery by Kitasato, a Japanese bacteriologist, that a person suffering from diphtheria could be cured by the injection of some of the blood serum of another animal that had recovered from the disease. If the toxins of the microbe of diphtheria be injected into the tissues of a horse, for instance, an antitoxin is produced. The horse is subjecteil to graduated doses, beginning with a few drops, (remember this is of the filtered toxin—no bacteria are present) and in the long run the horse can stand very large doses without any harm resulting. When in this condition the animal is bled in the ordinary way from the jugular, care being taken not to remove too much at a time and so weaken the animal. This can be repeated several times. The blood is allowed to coagulate, and the clear fluid on the top is the anti-diphtheritic serum which has the power of neutralising the toxins produced by the microbe of diphtheria in the human body. Under the treatment with this antitoxin the death-rate has fallen from 30 per cent. in 1892 to 9·6 per cent. last year.

Contagious Abortion in Cattle.

Next to tuberculosis, this disease causes more loss nad disappointment to stockowners than any other. Medicinal treatment has been tried in every shape and form with but little success. Powerful antiseptics have been used, both externally and internally, but with little effect. Where rigid precautions have been taken regarding the disinfection of the discharges from the female, and disinfection of the generative organs of both male and female, by far the greatest success has been

obtained. Abortin, which is somewhat like tuberculin and mallein, has not as yet been a success, either as a diagnostic or preventive. Anti-abortion is another preparation which has been tried. It consists of virulent cultures of the bacilli and can only be used in non-pregnant cows. It has not been found a success either.

Rabies.

No discovery in connection with inoculation was hailed with greater thankfulness than that of Pasteur for the prevention of hydrophobia. Fortunately in this terrible disease the period of incubation varies from 40 to 60 days, so that there is usually ample time for its application.

The treatment consists in active immunity being produced with virus attenuated by drying, and administered during the long incubation period in doses of progressively increasing virulence. The virulence of the virus is regulated by the extent of the period of drying.

Glanders.

Thanks to the use of mallein, glanders is at least in a fair way of being controlled. Especially in London, where it was at one time so prevalent, the disease is being stamped out.

Mallein, like tuberculin, produces a rise of temperature in from 8 to 12 hours after injection, but it gives rise to a much more marked swelling at the seat of injection than does tuberculin. Its preparation is carried out much on the same lines as tuberculin.

Tetanus.

Although anti-tetanic serum has been in use for many years there is still great differences of opinion as to its efficiency as a curative. My experience of it personally was greatly in its favour to begin with, the first 8 or 10 cases which I treated with it recovered; latterly, however, I have not by any means had the same success. There seems no doubt, however, about its protective qualifications. In some districts it is used in all cases of scrious wounds, and most successfully. Anti-tetanin is prepared in a similar manner to tuberculin.

Physical agents injurious to bacteria which can be utilised are dryness, light, and heat. Complete drying eventually destroys most of the pathogenic forms, although great differences of resistance are shown, some being killed in a few hours, while others, such as the T.B., can survive for a long time in a very dry condition.

Light—direct sunlight, is a most powerful germicide, except for a few species which exist in a manner similar to green plants. It has been found that exposure to direct sunlight will destroy the T.B. in a few hours. Well might we exclaim "Let there be light." What a reformation could be made in our byres and stables by the introduction of a sufficient number of skylights and windows, and if arrangements were made at the time for more perfect ventilation so much the better.

Heat is another efficient agent for sterilisation where it can be properly applied.

Disinfection of Buildings.

The disinfectants that can be used most effectively are hot lime waste and coal tar preparations in solution for buildings, and sulphurous acid for manure, not the least important part being thoroughness of application. There are spraying pumps on the market for this purpose which force the liquids into the most unget-atable corners and crevices of byres and stables. Under ordinary circumstances all these buildings should be thoroughly done at least twice a year. In connection with the animal itself much can be done when the bacteria are localised and can be reached. In the treatment of abortion great benefit can be attained by giving injections of any of the approved antiseptics into the vagina and uterus, and into the prepuce of the bull. Much can also be done in dealing with the discharges from animals suffering from infectious diseases to prevent the particular disease from spreading, by treating these discharges with strong preparations such as sulphurous acid.

Drugs.

It is doubtful if drugs prescribed internally to the host in the ordinary way have any great bactericidal action on parasites in the system. In many cases the host might be poisoned before the parasites become affected. Ehrlich, however, was struck by the fact that certaln bacteria could be stained with a particular dye, and this led him to believe that the tissue in fact was susceptible to the dye that stained it. He believed that although a drug—say arsenic—was given to a patient suffering from microbic disease in the ordinary form, it would have no effect; you might poison the patient to an alarming extent without affecting the parasite, because the poison does not enter their bodies. Ehrlich's idea was to contrive what he called an amboceptor or two catcher, something like a stain that wauld hold on to the microbe with one hand and to the deadly bactericide with the other hand. In this way he prepared the compound, Salvarsan, known as 606, that being the number on the list of substances he had experimented with. This is the compound of arsenic which kills the parasites of syphilis and which has been of so great value to mankind.

The Chairman said they were all very much indebted to Mr. Storie for producing such an interesting paper. They had still a few minutes before train time, and if any one would like to speak in connection with the paper by way of discussion, they would be glad to hear them.

Prof. Gofton said it was not just altogether an easy matter to pick up the various points for discussion in this interesting paper, for Mr. Storie had to hurry in the reading of it. One point that struck him was Mr. Storie's suggestion that bacteria operated largely, if not entirely, through toxins. He might be mistaken in what Mr. Storie said and what he meant, but he questioned very much if that could be accepted in all cases, and he was inclined to think that Mr. Storie took rather an optimistic view of toxins in the treatment and prevention of disease. One would not venture for a moment to belittle what had seen done in this direction already, but he thought they had a very much longer way to go yet before they could claim any really high degree of efficiency in treating and preventing disease by means of toxins. At the present time he thought there was an inclination to attribute too much value to toxin methods in the treatment of disease. Another point which had struck him was in regard to the administration of drugs in the treatment of bacterial diseases. He was glad to hear Mr. Storie's remarks in relation to syphilis, but it was very hard to know how far they might yet proceed along these lines.

Prof. McCall thanked Mr. Storie for his very interesting address. He was particularly struck with the practical manner in which Mr. Storie dealt with the subjects of the ordinary text-books. He was rather struck by Prof. Gofton's remark to the effect that serum treatment of disease perhaps had been over-estimated. Perhaps that might be applicable to disease in so far as they were concerned in this country, but he thought if Professor Gofton would refer to the work that had been done in this line abroad, and more particularly in America, he would see that the serum treatment of diseases had attained a considerable degree of efficiency, and was a treatment that was recognised by those in high authority. Another point that he had appreciated

in this paper very much was Mr. Storie's practical explanation of bacteriological methods. He should have liked if Mr. Storie had dealt a little more with the Tuberculosis Bill, and the relation of the bacteria in that connection. It was not an easy matter for a veterinary surgeon to come to a decision upon the presence or absence of tubercle bacilli, and particularly in relation to milk supply. He quite appreciated the objects of the authorities, but he thought the veterinary profession would find they would have considerable difficulty in coming to a definite conclusion as to whether the bacteria they were dealing with were actually tubercle bacilli or other bacilli.

Prof. BRADLEY said he did not pretend to pose as an expert bacteriologist, but he had some connection with the subject, practically and theoretically, and he should think there would be a considerable number of cases in which it would take not exactly a veterinary surgeon with ordinary knowledge of bacteriology, but take a bacteriologist, and one of great experience, to be able to say definitely whether they were dealing with tubercle bacilli or some other class of bacilli. That aspect of the Tuberculosis Order should not be lost sight of.

Prof. GOFTON said apparently he had not made himself clear in his remarks. He had no desire, and no intention, to belittle what had been done in the way of treatment with serum and toxins. What he meant to say was that the result of the value of that work was a tendency at the present time to presume upon it, and to carry it a little too far.

It was unanimously agreed to adjourn the discussion until next meeting.

JAMES HENDERSON, Hon. Sec.

Boarding out of Horses.

The "boarding-out" system, by which the War Office is endeavouring to maintain a reserve of trained troop horses is working successfully, the arrangement, so far, appearing to give satisfaction to both the Army Council and the "allottees." The system, however, does not wholly appeal to regimental officers who are naturally jealous of the care of the animals supplied them by the Remount Department. Their dislike of the system is perhaps responsible for the suggestion that those "boarded-out" horses, which were called in for manœuvres, imported mange from which the horses of so many units are now suffering. No evidence is yet forthcoming to substantiate that view. But assuming it to be correct, there must have been something radically wrong with regimental veterinary arrangements for horses in such condition to be accepted back on the strength. Several hundred horses have been dealt with under the scheme. As a rule, the horses are Irish-bred, eight years old, fully trained, and every care is taken to suit persons applying for them; they are delivered at Army expense, and a month's trial is allowed. The only cost to the "allottee" beyond keeping, is that of insuring the horse for £40, which costs roughly £2 per annum. The horses may be hunted, or used for any purpose save heavy draught, racing, or jobbing, but must not be put out to grass. They are liable to be called in for a month's training or manœuvres at Government expense, and on mobilsation must be given up immediately. Application for horses should be made to the officer commanding the nearest cavalry regiment, or to the Director Remounts at the War Office.—*The Daily Mail*, Hull.

DISEASES OF ANIMALS ACTS 1894 TO 1911, SUMMARY OF RETURNS.

Period.		Anthrax. Outbreaks Confirm'd	Anthrax. Outbreaks Reported	Anthrax. Animals Confirm'd	Anthrax. Animals Reported	Foot-and-Mouth Disease. Outbreaks	Foot-and-Mouth Disease. Animals.	Glanders † (including Farcy) Outbreaks	Glanders † (including Farcy) Animals.	Parasitic Mange. Outbreaks	Parasitic Mange. Animals.	Sheep Scab. Outbreaks	Swine Fever. Outbreaks.	Swine Fever. Slaughtered. *
GT. BRITAIN. Week ended Sep. 6		6		6				2	3	26	40	3	44	454
Corresponding week in	1912	10		11		5	59	3	4	17	27	1	29	339
	1911	15		18				6	14				35	325
	1910		27		28			6	6			4	19	309
Total for 36 weeks, 1913		387		426				118	300	1937	3891	132	1760	23566
Corresponding period in	1912	576		654		75	501	126	236	2365	5121	174	2247	29240
	1911	599		742		8	425	138	326			307	1803	21123
	1910		1027		1235	2	15	257	781			343	1019	9167

† Counties affected, animals attacked: London 2, Middlesex 1.

Board of Agriculture and Fisheries, Sept. 9, 1913.

IRELAND. Week ended Sep. 6	...	...	...	...	...	...	Outbreaks 3	2	1	14
Corresponding Week in 1912	...	...	...	2	11	...	...	1	1	2	11
Corresponding Week in 1911	...	...	...	...	...	...	...	...	1	...	8
Corresponding Week in 1910	...	...	...	...	...	...	...	...	...	2	14
Total for 36 weeks, 1913	...	...	...	...	...	...	101	376	113	681
Corresponding period in 1912	3	3	26	247	...	...	53	263	179	1493
Corresponding period in 1911	7	14	...	...	2	3	50	254	92	1587
Corresponding period in 1910	5	8	...	...	1	2	56	349	73	1707

† These figures include animals slaughtered and found affected on post-mortem examination.

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Sept. 8, 1913

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection

Personal.

BOLTON.—At 26 Woodland's Road, Shotley Bridge, Co. Durham, on the 6th inst., to Mr. and Mrs. W. T. Bolton, a son.

MCGOWAN—ENGLAND.—A marriage has been arranged, and will take place at Bombay on the 25th October, between Major John A. B. McGowan, A.V.C., Ambala, son of John McGowan, Esq., Fair View, Millom, Cumberland, and Hestor Geraldine, second daughter of Charles England, Esq., of Welton Manor, Brough, East Yorks.

Mr. RICHARD ATHERTON NORMAN POWYS, Secretary of the Royal Veterinary College, Camden Town, N.W., left property valued at £1,010.—*Star.*

OBITUARY

THOMAS OLVER, M.R.C.V.S., Truro, Cornwall.
Graduated, Lond: April, 1867.

The death of Mr. Thomas Olver, which took place at Truro, on Saturday. 6th inst., has removed a very well-known figure. Deceased, who was 72 years of age, had been in indifferent health for the last two years, when he underwent a serious operation from which he never really recovered.

Mr. Olver was born at St. Mabyn, near Wadebridge, the son of Mr. Thomas Olver, a well-known farmer at Tresco, St. Mabyn. After qualifying in London he commenced practice at Truro 40 years ago as a veterinary surgeon, and in those early days was probably the only veterinary surgeon in the West of Cornwall. He held an appointment under the Privy Council, being one of its oldest officers, and afterwards served as an inspector under the Board of Agriculture. He was veterinary surgeon to the Royal Cornwall Agricultural Association for fifty years, and an inspector for Truro Division of the County Council. During the existence of the old Truro Horse Show, he for many years acted as hon. secretary. Mr. Olver also took an interest in the Fourburrow Hunt. He was never married, but leaves two brothers and a sister.—*West Briton.*

WILLIAM HOLLIDAY, M.R.C.V.S., Lazonby, Cumberland.
Lond: July, 1907.

At St. Pancras Station on Thursday, 4th inst., Mr. Walter Schroder held an inquest on the body of William Holliday, 30, a veterinary surgeon, and lately residing at Worship Street, London.

Mr. Robert Holliday, veterinary surgeon, Lazonby, identified the body as that of his son, who, he said, always enjoyed good health. For the last two months he had been employed at the Veterinary Infirmary, Worship Street.

Other evidence showed that on Monday evening, while the deceased was sitting in the waiting room of the departure platform at St. Pancras Station, he suddenly fell unconscious to the floor, and expired before medical aid could be obtained.

Dr. O'Donell, who made an autopsy of the body, attributed death to syncope, owing to an acute attack of congestion of the lungs, while deceased was suffering from heart disease.

A verdict of "death from natural causes" was returned. Subsequently the body was removed to St. Pancras Station and entrained for Lazonby.

The funeral took place at Lazonby on Friday afternoon, and the huge gathering of mourners and friends spoke volumes for the place the deceased had made for himself in the affection of his neighbours, and for the respect in which his family is held in the locality. The service was impressively conducted by the Rev. Canon Wilson. The deceased was a member of the Penrith Unanimity Lodge of Freemasons, and there was a large gathering of the brethren, those present including Messrs. J. W. Hewitt, W.M., T. H. Thompson, P.M., W. Scott, V.S., J. Barron, E. Story, L. Lamonby, and G. Smiley, Penrith; Dr. Law, Kirkoswald; I. Longrigg, junr., and H. Smith, Lazonby; and W. Johnston, Langwathby. At the close of the service the brethren filed past the open grave and dropped into it the sprays of acacia.—*Cumberland Herald.*

CORRESPONDENCE.

THE STATE CONTROL OF TUBERCULIN.

Sir,

I am one of many who look forward to, and carefully read your well considered and sage editorial remarks each week in *The Veterinary Record*, but those of us who are anxious that tuberculin should be placed under control must have been somewhat disappointed at reading your remarks on this subject in the issue of August 30th.

I need not enter into the question of whether this control is desirable or not, because this you fully admit, remarking that it would be "obviously desirable," "a good thing," and "would enable us to work under ideal conditions," but you proceed to enumerate what you feel are great difficulties.

1. That "no British Government would be at all likely to adopt it." May I say that the President of the Local Government Board, who would have to deal with this matter, has made first-hand enquiries and expressed himself, privately, entirely in its favour.

2. That it "would interfere with vested interests." We may ask what vested interest has not been interfered with successfully during the last few years? I need mention only two—beer and land. Compared with these, the vested interests, if any, in tuberculin are quite insignificant. If I thought it would do harm to the manufacturers of tuberculin I would not support it, but surely it is to their advantage to ensure that it shall only be employed by a properly qualified man who knows how to use it to the best advantage, and not to abuse it.

3. That "legislation could not be properly enforced." The distributing institutions are so few, and many of them even now are co-operating splendidly by refusing to sell tuberculin to any but veterinary surgeons, that it should be a comparatively easy matter to enforce. Besides, a herd of cows, or even a single cow, cannot be tested without a number of people knowing. We should also have the support of the majority of agriculturists, for as I indicated in a previous communication, they have expressed themselves entirely in favour of reform in this direction; in fact they are demanding it more strongly even than we ourselves—*Vide The Farmer and Stockbreeder.*

4. That it "would make it a secret practice." It is almost impossible to conduct the tuberculin test secretly, but those owners who are *now* employing unqualified persons to defeat the operations of the Tuberculosis Order are not doing it publicly, otherwise they would not be able to sell their reactors in the market afterwards. There would be little difference on this score.

It is well that a subject of this sort should be thoroughly discussed from both sides, and it is with this idea that I venture to make these remarks.

Are the difficulties as great as suggested? Shall we veterinary surgeons wait for the agriculturist to again come to our help (e.g. the Milk Bill) and show us what should and must be done, not only to guard our interests, but what is more important, to protect the honest cattle owner and ensure a standard reliable tuberculin in the hands of those qualified to use it.—Yours faithfully,

G. P. MAIR.

Reading. Sept. 10.